

Reply to Office Action of September 30, 2004
Amendment Dated: October 5, 2004

Appl. No.: 10/617,039
Attorney Docket No.: CSCO-032/7715

Listing of Claims

1 1. (Currently Amended): A method of processing multi-protocol label switching
2 (MPLS) packets in a MPLS device, said method comprising:

3 receiving a configuration data identifying a group of multi-labeled packets and a
4 corresponding desired EXP value for a stack entry at a low level for said group of
5 multi-labeled packets, wherein EXP corresponds to the experimental bit field in MPLS
6 protocol;

7 receiving a multi-labeled packet containing a data packet and a plurality of stack
8 entries including a low stack entry at said low level;

9 determining whether said multi-labeled packet falls in said group;

10 setting EXP bits of said low stack entry to said corresponding desired value if said
11 multi-labeled packet falls in said group; and

12 forwarding said multi-labeled packet containing said desired value in EXP bits in
13 said low stack entry.

1 2. (Original): The method of claim 1, wherein said MPLS device comprises an
2 autonomous system border router (ASBR) located at an edge of a network managed by
3 a service provider, wherein said service provider controls service levels in forwarding said
4 multi-labeled packet further down a path by setting said EXP bits.

1 3. (Original): The method of claim 2, wherein said group of multi-labeled packets
2 are identified by a value in EXP bits of a specific stack entry, wherein said determining
3 comprises examining said multi-labeled packet as received for said value in EXP bits of
4 said specific stack entry.

1 4. (Original): The method of claim 1, wherein said data packet is received in the
2 form of Internet Protocol (IP).

1 5. (Currently Amended): A machine readable medium carrying one or more

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2 sequences of instructions for causing a multi-protocol label switching (MPLS) device to
3 process packets, wherein execution of said one or more sequences of instructions by one
4 or more processors contained in said MPLS device causes said one or more processors
5 to perform the actions of:

6 receiving a configuration data identifying a group of multi-labeled packets and a
7 corresponding desired EXP value for a stack entry at a low level for said group of
8 multi-labeled packets, wherein EXP corresponds to the experimental bit field in MPLS
9 protocol;

10 receiving a multi-labeled packet containing a data packet and a plurality of stack
11 entries including a low stack entry at said low level;

12 determining whether said multi-labeled packet falls in said group;

13 setting EXP bits of said low stack entry to said corresponding desired value if said
14 multi-labeled packet falls in said group; and

15 forwarding said multi-labeled packet containing said desired value in EXP bits in
16 said low stack entry.

1 6. (Original): The machine readable medium of claim 5, wherein said MPLS
2 device comprises an autonomous system border router (ASBR) located at an edge of a
3 network managed by a service provider, wherein said service provider controls service
4 levels in forwarding said multi-labeled packet further down a path by setting said EXP
5 bits.

1 7. (Original): The machine readable medium of claim 6, wherein said group of
2 multi-labeled packets are identified by a value in EXP bits of a specific stack entry,
3 wherein said determining comprises examining said multi-labeled packet as received for
4 said value in EXP bits of said specific stack entry.

1 8. (Original): The machine readable medium of claim 5, wherein said data packet
2 is received in the form of Internet Protocol (IP).

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1 9. (Currently Amended): A MPLS (multi-protocol label switching) device
2 processing MPLS packets, said MPLS device comprising:

3 a memory storing a configuration data identifying a group of multi-labeled packets
4 and a corresponding desired EXP value for a stack entry at a low level for said group of
5 multi-labeled packets, wherein EXP corresponds to the experimental bit field in MPLS
6 protocol;

7 an inbound interface receiving a multi-labeled packet containing a data packet and
8 a plurality of stack entries including a low stack entry at said low level;

9 a label processing block determining whether said multi-labeled packet falls in said
10 group and setting EXP bits of said low stack entry to said corresponding desired value if
11 said multi-labeled packet falls in said group; and

12 an outbound interface forwarding said multi-labeled packet containing said desired
13 value in EXP bits in said low stack entry.

1 10. (Original): The MPLS device of claim 9, wherein said MPLS device comprises
2 an autonomous system border router (ASBR) located at an edge of a network managed
3 by a service provider, wherein said service provider controls service levels in forwarding
4 said multi-labeled packet further down a path by setting said EXP bits.

1 11. (Original): The MPLS device of claim 10, wherein said group of multi-labeled
2 packets are identified by a value in EXP bits of a specific stack entry, wherein said label
3 processing block examines said multi-labeled packet as received for said value in EXP
4 bits of said specific stack entry.

1 12. (Original): The MPLS device of claim 9, wherein said data packet is received
2 in the form of Internet Protocol (IP).

1 13. (Currently Amended): A MPLS (multi-protocol label switching) device

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2 processing MPLS packets, said MPLS device comprising:

3 means for receiving a configuration data identifying a group of multi-labeled
4 packets and a corresponding desired EXP value for a stack entry at a low level for said
5 group of multi-labeled packets, wherein EXP corresponds to the experimental bit field in
6 MPLS protocol;

7 means for receiving a multi-labeled packet containing a data packet and a plurality
8 of stack entries including a low stack entry at said low level;

9 means for determining whether said multi-labeled packet falls in said group;

10 means for setting EXP bits of said low stack entry to said corresponding desired
11 value if said multi-labeled packet falls in said group; and

12 means for forwarding said multi-labeled packet containing said desired value in
13 EXP bits in said low stack entry.

1 14. (Original): The MPLS device of claim 13, wherein said MPLS device
2 comprises an autonomous system border router (ASBR) located at an edge of a network
3 managed by a service provider, wherein said service provider controls service levels in
4 forwarding said multi-labeled packet further down a path by setting said EXP bits.

1 15. (Original): The MPLS device of claim 14, wherein said group of multi-labeled
2 packets are identified by a value in EXP bits of a specific stack entry, wherein said means
3 for determining examines said multi-labeled packet as received for said value in EXP bits
4 of said specific stack entry.

1 16. (Original): The MPLS device of claim 13, wherein said data packet is received
2 in the form of Internet Protocol (IP).

1 17. (Currently Amended): A provider network containing:
2 a MPLS (multi-protocol label switching) device processing MPLS packets, said
3 MPLS device comprising:

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4 a memory storing a configuration data identifying a group of multi-labeled
5 packets and a corresponding desired EXP value for a stack entry at a low level for
6 said group of multi-labeled packets, wherein EXP corresponds to the experimental
7 bit field in MPLS protocol;

8 an inbound interface receiving a multi-labeled packet containing a data
9 packet and a plurality of stack entries including a low stack entry at said low level;

10 a label processing block determining whether said multi-labeled packet falls
11 in said group and setting EXP bits of said low stack entry to said corresponding
12 desired value if said multi-labeled packet falls in said group; and

13 an outbound interface forwarding said multi-labeled packet containing said
14 desired value in EXP bits in said low stack entry.

1 18. (Original): The provider network of claim 17, further comprising an edge
2 device receiving said multi-labeled packet from a private network and forwarding said
3 multi-labeled packet to said MPLS device.

1 19. (Original): The provider network of claim 18, wherein said MPLS device
2 comprises an autonomous system border router (ASBR) located at an edge of a network
3 managed by a service provider, wherein a service provider controls service levels in
4 forwarding said multi-labeled packet further down a path by setting said EXP bits.

1 20. (Original): The provider network of claim 19, wherein said group of
2 multi-labeled packets are identified by a value in EXP bits of a specific stack entry,
3 wherein said label processing block examines said multi-labeled packet as received for
4 said value in EXP bits of said specific stack entry.

1 21. (Original): The MPLS device of claim 19, wherein said data packet is received
2 in the form of Internet Protocol (IP).

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- 1 22. (Original): The provider network of claim 19, further comprising a plurality
- 2 of core devices to forward said multi-labeled packet from said edge device to said ASBR.